STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF MAY 31, 2002

Prepared on February 25, 2002

ITEM NUMBER: **20**

SUBJECT: **New Waste Discharge Requirements, Order No. R3-2002-0058 for Monterey Pacific Winery, King City, Monterey County**

KEY INFORMATION

Discharger:	**Monterey Pacific Winery Corporation**
Location:	**19640 Industrial Way, King City**
Discharger Type:	**Wine Processing Wastewater**
Design Flow Rate:	**Up to 66,000 gallons per day during crush at full build out**
Treatment Method:	**Screening, Oxidation Pond System**
Disposal Method:	**None**
Recycling:	**Vineyard Irrigation**
Existing Order:	**None**

SUMMARY

Monterey Pacific Winery proposes to discharge wastes from a new winery located northeast of King City, off Bitterwater Road, and near the Mesa Del Rey Airport. At full build out, the winery will produce an estimated 52,850 gallons per day of winery process wastewater during the crush. Treated wastewater will be used to irrigate a large vineyard. The discharge occurs in the Salinas hydrologic unit and in the Upper Valley Aquifer Sub-Area of the Salinas Ground Water Basin.

DISCUSSION

General Facility Description

Monterey Pacific Winery Corporation owns the Monterey Pacific Winery, which is located at 19640 Industrial Way in King City (36° 13' 32" North Latitude, 121° 06' 48" West Longitude), as shown on the proposed Order's Attachment "A". The Monterey Pacific Winery is considered a large winery. It will be constructed in phases. Phase I is planned for completion prior to crush in 2002 and will process up to 7,000 tons of grapes. Phase II is planned for completion in 2003 and will have a capacity of 14,000 tons. Crushing will occur over a 6-8 week period. Process wastewater will be treated onsite to reduce organic pollutants and treated effluent will then be used for vineyard irrigation.

Waste Streams

There are various sources of wastewater generation associated with wine processing. These include tank cleaning, crush equipment washdown, crush pad washdown, wine settlement, wine filtering, and barrel and wine transfer pipe/hose cleaning. The process waste will consist of water, grape juices, grape pomace (skins seeds, and vines) from grape crush, bentonite and diatomaceous earth used as wine settling and filter agents, wine process residue, and minor amounts of cleaning chemicals. Cleaning chemicals may consist of chlorinated trisodium phosphate and other chlorinated cleaners. A small amount of tartrates, sulfites, and sulfates which occur naturally in wine will be introduced to the waste system at certain times during the year. Wine additives such as citric acid, malic acid, tartaric acid, phosphate and sulfur dioxide may be added. Pomace, bentonite and diatomaceous earth are handled separately and do not enter the wastewater stream. Solids will

be composted and spread in the vineyard for use as nutrient addition.

To reduce the level of salts in the wastewater, alternatives to standard water treatments will be used. Ozonated water will be used for the main cleanup of the crush pad, transfer hoses, and tanks. Chlorinated cleaners will be used on a limited basis primarily for sterilization of connections and pumps. Cleaning with aqueous citrus-based solutions will follow to remove the chlorine. Soda ash (sodium carbonate) will be used in limited amounts for neutralization of citric acid treated surfaced and for tartrate removal.

Water softeners are a potential source for salts and their use will be minimized. Alternatives to salt based water softeners will be investigated and incorporated if possible. Alternatives may include di-polar non-chemical water softening technology.

Cleanup chemicals including chlorinated materials and cooling water treatment additives may add an excessive amount of salt to the wastewater. This may increase the level of chlorides and sodium in the wastewater that cannot be removed by the treatment process. Excess sodium and chlorides may be detrimental to plant health when applying the treated wastewater to the vineyard. Mixing this water with standard well irrigation water (blending) will reduce the concentration of salts.

It has been determined from review of the FEMA Flood Insurance Rate Map (FIRM) for this area that the 100-year flood line is located east of the facility at San Lorenzo Creek and south of the facility at the Salinas River. A 100-year return flood will impact neither the winery facility nor the vineyard.

Collection System

Trench drains with grated covers will be utilized on the covered crush pad and storage tank areas. These units will serve as primary screening to capture large grape particles and vines (pomace). The surface of these grated covers will be cleaned on a regular (daily) basis to remove solids. The removed material will be composted in the vineyard.

All flow from the trench drains enters a process waste drain system. The drain system discharges to the first sump pump lift station. A mixing valve will be used on the sump pump to keep particles in suspension to ensure that they will be removed from the sump.

Accumulated wastewater at the first lift station is pumped to a screening device that will remove additional finer material not removed by the trench drain covers. The screened material will be discharged into a bin for vineyard composting.

Treatment System

After being treated and screened at the rotary screen system the wastewater discharges to the second sump pump lift station that then discharges to a lined, aerated treatment pond system (The pond water balance and sizing calculations are on file). The aerated pond system will consist of two ponds with the first pond providing aeration and mixing and the second pond providing aeration and settling. The first pond will be installed initially and will utilize a baffle separator to divide the pond into two treatment sections. The second pond will be constructed in the future to accommodate the increased flows from the planned 14,000-ton capacity facility.

The proposed dimensions of the primary pond will be 400 feet long by 90 feet wide by 10 feet deep with 2.5:1 sloped sides. The primary pond will have a 1.84 million gallon capacity. The proposed dimensions of the secondary pond will be 200 feet long by 90 feet wide by 10 feet deep with 2.5:1 sloped sides. This pond will have a 870,000 gallon capacity.

The installed capacities during Phase 1 and Phase 2 will be:

POND CAPACITIES			
Phase	**Pond, Gallons**	**Total Crush Flow, Gallons**	**Pond to Flow Ratio**
Phase 1	1,840,000	1,295,000	1.42
Phase 2	2,710,000	2,590,000	1.05

The ponds will have two feet of freeboard to accommodate excess flow and to prevent overflow. The pond will be lined with a geotextile material appropriate for the strength and quality of the wastewater.

The ponds are sized considering all potential inflows and outflows. The pond size considers the following:

Pond Inflows	Pond Outflows
Crush period flow	Transfer to irrigation system
Non crush flow	Surface evaporation
100 year return storm events	Wet season land application

Aerators will be used to reduce the Biochemical Oxygen Demand (BOD) to allowable discharge levels. The average influent BOD is estimated at 5,000 mg/L, and could range as high as 7,000 mg/L. The wastewater will be treated to approximately 50 mg/L BOD prior to discharge to vineyard irrigation.

Pond-1 will be designed to treat the wastewater from 5000 mg/l BOD down to approximately 500 mg/L BOD. Pond-2 will treat the wastewater from 500 mg/l BOD to approximately 50 mg/l. Aeration will require 4-15 HP brush aerators depending on the final manufacturer selected (Aerator sizing calculations are on file). The aerators will be spaced evenly through Pond-1. The floating baffle system is used to separate Pond-1 into two compartments to provide better treatment control. This design will provide a two-compartment system during Phase-I operation.

A second pond can be added later to meet the Phase-II loading requirements. This pond will require up to seven 1/2 HP aerators depending on final manufacturer selected. A floating baffle may be added in this pond to provide a final settling area prior to pump out to irrigation.

The treated wastewater will be held in the second pond or (second section of the baffled pond) until it is determined to be within discharge limits. The treated wastewater will then be pumped to the vineyard irrigation pond. The wastewater will be filtered prior to entering the irrigation pond. Vineyard irrigation will be provided with both treated wastewater and irrigation water. Irrigation will be provided to the vineyard via drip emitter type irrigation.

The existing vineyard consists of approximately 3,500 acres of vines in sandy loam type soil. Per the water balance study (Appendix-C) only ten acres of vineyards is necessary to adequately dispose of the treated wastewater during both wet weather months and during the growing season. Due to the set up of the irrigation system, more than ten acres will be available for irrigation at any one time.

No treated wastewater will be provided to the irrigation system during the crush period unless it is determined that it is within the discharge limits. If it is within the discharge limits, it will be pumped to the irrigation system. The pond system has been adequately sized to handle the anticipated crush flow, so it will not be necessary to transfer treated wastewater out of the pond to maintain capacity.

Treated wastewater will be transferred to the irrigation system following the end of crush (November). Since there will be no, or very limited, vineyard irrigation required at that time the water will be applied at a rate not exceeding the percolation capacity of the soil. The percolation limit was determined considering 4% of the most restrictive average permeability rate (per the soil conservation service soil survey) less net impact of the 100 year return rainfall and surface evaporation. The non-irrigation application rate was limited to one-inch per month or less even though calculations show that greater amounts could be applied in certain months. No treated wastewater will be applied to the vineyard within 24 hours of anticipated rain or within 24 hours after a rain event in order to prevent ponding and surface runoff.

During the growing season, the treated wastewater will be mixed with the irrigation water and will be applied at agronomic rates, based on crop evapotranspiration and irrigation requirements.

Sanitary sewer waste from the offices and facility restrooms will be discharged to the King City sanitary sewer system. No onsite treatment or disposal of sanitary waste will occur.

Land Characteristics
The facility and pond soils slope very gently to the south and southwest. The vineyard soils also slope to the south and southwest; however, the vineyard slope steepens slightly as the terrace gives way to the mountains that form the eastern edge of the Salinas Valley.

The soil types near the facility include stiff clay and sandy clay underlain by dense sand and coarse gravel. Surface soils are underlain by either stiff clay or gravel.

The soil types near the vineyard range from silty clay (CnA) to sandy loam (CbA) and (PnA). The dominant soil type in the area is sandy loam, underlain by clay. Runoff for this soil is slow and erosion hazard is light. This soil is used mainly for irrigated row and field crops. Soil percolation rates (permeability) range from 0.06 in/hr to 2.0 in/hr becoming more restrictive at depth. These soils are not subject to high water tables and are considered sufficient for lightly loaded winter wet weather treated wastewater application.

Nearest Surface Water
The Monterey Pacific Winery facility will be located approximately 3000 feet west of the San Lorenzo Creek. No other surface waters are located nearby. The beneficial uses of San Lorenzo Creek include:

a) Municipal and Domestic Supply
b) Agricultural Supply
c) Ground Water Recharge
d) Water Contact Recreation
e) Non-Contact Water Recreation
f) Wildlife Habitat
g) Warm Fresh Water Habitat
h) Spawning, Reproduction, and/or Early Development
i) Commercial and Sport Fishing

Total Maximum Daily Loads
For discharges within several of the Central Coast Region's Watershed basins, Total Maximum Daily Load allocations will be developed for impaired surface waters. TMDL documents will allocate responsibility for constituent loading throughout a particular Watershed basin. In the case of the Salinas Valley Watershed, draft TMDL documents are anticipated by June 2002 for siltation and June 2003 for nutrients, pesticides and salinity. If Regional Board staff finds constituents from a discharge may adversely impact beneficial uses or exceed water quality objectives then said discharge may be allocated TMDLs. If allocated, a TMDL discharger's waste discharge requirements may be modified to accommodate the allocation.

Groundwater Characteristics
The Facility overlies the Upper Valley Aquifer Sub-Area of the Salinas Groundwater Basin. Present and anticipated beneficial uses of groundwater near the discharge include:

- Municipal & Domestic Water Supply,
- Agricultural Water Supply
- Industrial Process Supply, and
- Industrial Service Supply.

Many ground water monitoring wells are located near the proposed winery facility. These wells are located just across Industrial Way from the proposed facility and extend to the south and the west.

An extensive ground water study has been done in this area due to the discovery of a pesticide plume at the Soil Serve facility and the presence of chlorinated solvents near the closed landfill facility. The vineyard area is upgradient from these contaminated sites. The ground water gradient is to the west and north west of the proposed winery facility.

The nearest monitoring well to the winery is S MW-3 located on the Soil Serve property. This well is located directly southwest of the proposed winery facility. The surface elevation of this well is 383-feet above mean seawater level (MSL). The ground water elevation is 279.99, which provides a depth to groundwater of about 103 feet. The base site elevation for the new winery will be approximately 376 feet (MSL). The estimated depth to groundwater would be approximately 96 feet considering a constant groundwater gradient. The elevation of the vineyard is 400 feet (MSL) and greater in elevation. Depth to groundwater in the vineyard area is estimated to be at least 100-feet.

Ground Water Quality
The Ground Water Sampling Report indicates the natural ground water near the proposed winery and the vineyard area are of poor quality and are not suitable for potable, irrigation, or industrial uses. The vineyard manager has reported that various attempts have been made in the past to drill for agricultural quality water on the sloped vineyard area above Industrial Way, but this water has proved to be very high in Boron and toxic to agricultural plantings. Water for agricultural uses is currently provided from the lower valley areas located to the west.

The results of current laboratory testing show non-detectable levels of VOC's for the soil serve monitoring well # 3 (S MW-3).

Proposed Order
The proposed Order contains standard requirements associated with winery regulation. Winery wastewater treatment and recycling is limited to land owned by the Discharger. Winery process wastewater flows are limited to a 30-day average flow of 52,850 gallons per day. $BOD_{5\text{-day},20^{o}C}$ is limited to a 30-day average of 50 mg/L. Inorganic salts limits are set at the Basin Plan's median water quality objectives. Since the treated wastewater is used for vineyard irrigation, ground water monitoring is not proposed.

Potential Problems
As long as the system is constructed, operated and maintained as designed, staff does not anticipate water quality related problems.

ENVIRONMENTAL SUMMARY

This action is intended to ensure compliance with laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act pursuant to Section 15321 of the Resources Agency Guidelines. Mitigation measures to prevent nuisance and assure protection of beneficial uses of surface and groundwaters will be implemented through this Order.

On February 26, 2002, the City of King adopted a Negative Declaration for the project in accordance with the California Environmental Quality Act (Public Resources Code, Section 21000 et seq.) and the California Code of Regulations. The City of King determined there are no significant adverse environmental effects or that all potentially significant adverse effects can be avoided through implementation of mitigation measures. Mitigation measures to prevent nuisance and assure protection of beneficial uses of surface and groundwater will be implemented through this Order.

COMMENTS

Comments were solicited from the following:

- Steve McIntyre, Monterey Pacific
- Clark Trucking
- Silva Farms/Harvesting
- Miller Towing
- Pacific Continental Truss
- City of King
- Monterey Co. Environmental Health Dept.
- Monterey Co. Building & Planning Dept.
- Monterey Co. Public Works Dept.
- Monterey Co. Water Resources Control Agency
- Cal. Dept. of Fish and Game, Region 3-Central Coast Region

Monterey Pacific Winery – Verbal Concurrence

The only written response came from the Monterey County Environmental Health Department. That agency concurs with Regional Board Staff recommendations.

RECOMMENDATION

Adoption of proposed Order No. R3-2002-0058

ATTACHMENTS

1. Order No. R3-2002-0058
2. Monitoring and Reporting Program No. R3-2002-0058